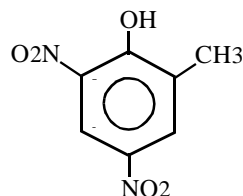


4,6-DINITRO-O-CRESOL, AND SALTS

4,6-Dinitro-o-cresol, and salts are federal hazardous air pollutants and were identified as toxic air contaminants in April 1993 under AB 2728.

CAS Registry Number: 534-52-1

Molecular Formula: $C_7H_6N_2O_5$



4,6-Dinitro-o-cresol occurs as yellow prisms or needles from alcohol. It is soluble in alkaline aqueous solutions, ether, acetone, and alcohol, sparingly soluble in water and petroleum ether, and is moderately volatile with steam (Merck, 1989). 4,6-Dinitro-o-cresol is incompatible with strong oxidizers (Sittig, 1985). Its salts, formed by inorganic and organic bases, are soluble in water (HSDB, 1991).

Physical Properties of 4,6-Dinitro-o-Cresol

Synonyms: 2-methyl-4,6-dinitrophenol; 3,5-dinitro-o-cresol; DNOC; dinitroocresol; 3,5-dinitro-2-hydroxytoluene

Molecular Weight:	198.13
Boiling Point:	312 °C
Melting Point:	87.5 °C
Vapor Density:	6.8 (air = 1)
Vapor Pressure:	1.05×10^{-6} mm Hg at 25 °C
Log Octanol/Water Partition Coefficient:	2.12
Conversion Factor:	1 ppm = 8.1 mg/m ³

(Howard, 1990; HSDB, 1991; Merck, 1989; U.S. EPA, 1994a)

SOURCES AND EMISSIONS

A. Sources

4,6-Dinitro-o-cresol has been used as a dormant insecticide spray especially for fruit trees or waste ground to kill locusts and other insects (Howard, 1990). As of January 1, 1988, 4,6-dinitro-o-cresol, sodium salt is no longer registered for pesticidal use in California (DPR, 1996); the parent compound was never registered for pesticidal use in California (DPR, 1997). 4,6-Dinitro-o-cresol is currently not registered for use in the United States (Meister, 1995).

B. Emissions

No emissions of 4,6-dinitro-o-cresol from stationary sources in California were reported, based on data obtained from the Air Toxics “Hot Spots” Program (AB 2588) (ARB, 1997b).

C. Natural Occurrence

No information about the natural occurrence of 4,6-dinitro-o-cresol and salts was found in the readily-available literature.

AMBIENT CONCENTRATIONS

No Air Resources Board data exist for ambient measurements of 4,6-dinitro-o-cresol and salts.

INDOOR SOURCES AND CONCENTRATIONS

No information about the indoor sources and concentrations of 4,6-dinitro-o-cresol and salts was found in the readily-available literature.

ATMOSPHERIC PERSISTENCE

No information about the atmospheric persistence of 4,6-dinitro-o-cresol and salts was found in the readily-available literature.

AB 2588 RISK ASSESSMENT INFORMATION

4,6-Dinitro-o-cresol and salts emissions are not reported from stationary sources in California under the AB 2588 program. It is also not listed in the California Air Pollution Control Officers Association Air Toxics “Hot Spots” Program Revised 1992 Risk Assessment Guidelines as having health values (cancer or non-cancer) for use in risk assessments (CAPCOA, 1993).

HEALTH EFFECTS

Probable routes of human exposure to 4,6-dinitro-o-cresol and salts are inhalation, ingestion, and dermal contact.

Non-Cancer: 4,6-Dinitro-o-cresol uncouples oxidative phosphorylation and may induce methemoglobinemia. Damage to the liver, kidney, and nervous system has been reported in humans following acute exposure. Symptoms from acute and chronic exposure include profuse sweating, thirst, fatigue, headache, nausea, appetite loss, collapse, coma, and greenish-yellow pigmentation of the conjunctivae in humans. Yellow coloring of the hands, nails, and hair may also result. Also, effects to the cardiovascular, gastrointestinal and central nervous system, and

changes in blood counts, have been reported in chronically exposed workers (U.S. EPA, 1994a).

The United States Environmental Protection Agency (U.S. EPA) has not established an oral Reference Dose (RfD) for 4,6-dinitro-o-cresol, and has the Reference Concentration (RfC) under review (U.S. EPA, 1994a).

No information is available on adverse reproductive or developmental effects from exposure of humans to 4,6-dinitro-o-cresol. No embryotoxic or teratogenic effects were observed in mice exposed orally or by injection to 4,6-dinitro-o-cresol (U.S. EPA, 1994a).

Cancer: No information is available on the carcinogenic effects of 4,6-dinitro-o-cresol in humans or animals. The International Agency for Research on Cancer and the U.S. EPA have not classified 4,6-dinitro-o-cresol for potential human carcinogenicity (IARC, 1987a; U.S. EPA, 1994a).

